Commentary

Further changes are needed if the National Care Record Service (NCRS) implementation is to succeed

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Introduction

The paper from Cresswell and Sheikh summarises much of the literature about implementation.[1] Its opening paragraph is a masterly précis of the reasons why large Government-led information technology (IT) projects all too often fall short of expectations, and its body clearly identifies major socio-technical issues which have plagued the NCRS.

An IT implementation like the NCRS is an enabler of health service transformation rather than an end in itself. Such transformation should be proactive, rather than reactive. The system needs to be able to co-evolve with the health enterprise's objectives rather than force it to change at a pace it cannot manage or, worse still, fossilise the clinical process in digital and contractual concrete based on a historical model of practice. These concepts are well described within the socio-technical literature – and we welcome the weight given to this aspect within this paper.[2]

However, we believe the literature also identifies other issues relevant to the implementation of the NCRS which should be given greater prominence.

Primary care is very much part of the NCRS. In three of the five English clusters efforts are being directed towards replacing existing practice systems with one system from a single supplier which will also serve community health services, with extensions to other services made or planned in some areas. This will provide a shared detailed care record (SDCR) used by a wide variety of care professionals and several different types of care provider. This is arguably the most radical element of the NCRS currently being implemented. The ultimate intention was to replace the SDCR with a system that would also include local hospital records, but this may have changed.

Other factors to consider in implementation

There are other important factors which have slowed up the implementation of the record service, which should have been given greater prominence in this paper:

1 **Privacy and confidentiality** The paper makes no mention of the impact that information governance issues – discussed by Navarro[3] and Neame[4] in the pages of this journal – will have on any major initiative that proposes widespread use of a summary care record (SCR) and SDCRs. They were major causes of the delays in implementation of the SCR, and are now surfacing[5] in the SDCRs being implemented in three of the five clusters. Several reports have challenged the basis of these records,[6,7] and professional users' experience of the single shared electronic patient record challenges aspects of functionality and governance.[8]
2 **One size doesn't fit all** The paper comes close to saying this, but doesn't quite. All large organisations, especially governments, simplify the real world to enable them to attempt the planning and implementation of change on the macro scale.

However, the NHS consists of thousands of more or less autonomous and heterogeneous units, which while implicitly sharing a common view of the care process at an abstract level, have different ways of delivering that care. They will also be at different levels of informatics and business maturity, which in turn means that there will be considerable variation of informatics use and business objectives across provider units of a similar type. Such a playing field calls for a combination of bottom-up and top-down approaches to ensure sensitivity to local issues, ideally in system design, procurement and implementation. This is particularly important when local implementation is driven by centralised procurement based on a single national specification, the customers are not in close contact with their suppliers, and they are subject to contractual mechanisms which they played little or no part in developing.[9]

3 **The NCRS relies upon major transformation to succeed** While the paper acknowledges that the sharing of detailed electronic care records being implemented by the NCRS is transformational, it fails to recognise the magnitude of the cultural change it implies. The SDCR and SCR inevitably raise significant clinical and information governance issues, as they extend information sharing beyond the current boundaries of trusted communities that share sufficient common context. This in turn raises concerns that sufficient context is available, and the quality of the data is good enough, to ensure sound semantic interoperability. The NCRS requires new ways of working if it is to achieve its potential. It makes new demands on the electronic record keeping systems involved, some of which probably require new functionality to help enquirers retrieve the information relevant to their enquiry and avoid information overload. Information duplication is a problem for algorithmic use of patient data for decision support and secondary uses. Some of the issues are not new but have to date been masked by the use of electronic patient records confined to individual provider units. Addressing the transformation issues has only formally started in the wake of implementation, vide the recent report on the single shared electronic patient record commissioned from the Royal College of General Practitioners (RCGP) by NHS Connecting for Health as a result of user concerns.[10] In the wider context, there is also a need to explore what we mean by sharing patient information, and the characteristics and comparative merits/demerits of the various means of doing so: shared detailed care records are only one such means. In this context, it is worthy of note that the RCGP report[10] considered sharing access to records as very different from purposeful communication between people, e.g. via a referral or discharge letter.

4 **Leadership and professionalism in informatics** Effective IT implementation needs local leadership and management. This requires greater clinical and managerial belief in the benefits of implementation, with overt transformational goals. This appears to be in marked contrast to the experience on the ground reported in the study by Greenhalgh *et al* of their implementation.[5]

There is greater need for informatics training among managers, leaders and users, as well as system-specific training. This is something recognised in the Swindells report,[10] but not as yet implemented. It is possible that greater professionalism in informatics is fundamental to addressing privacy as well transformational goals.[11]

5 **Data migration** Data migration issues are not mentioned in the paper. Implementing SDCRs involves migrating patient data from one electronic record system to another, from a paper to an electronic record or a mixture of the two, and all on a much greater scale than hitherto. In his 'first law of informatics' van der Lei states that information can only be used for the purpose for which it was intended.[12] A historical paper clinical record of 'depression' may have been written as an aide memoire for an individual clinician, who never thought anyone else would see it, and may have a completely different meaning from a more recent computerised clinical record completed in order to achieve a pay-for-performance target.

de Lusignan and Mimnagh have proposed a second law, stating that if you fully understand the context in which data are recorded you can break the first law.[13] However, our lack of any method for the codification of context means that data migration occurs without this vital contextual component – which in the case of our 'depression' record may considerably modulate meaning.

Data migration is a necessary evil only to be undertaken where the benefits of doing so are considered to outweigh the risks involved. Different systems may or may not use data for similar purposes. However, these data are often held in different structures, with different granularity and represented through different terminologies. Ensuring the quality of migration is a labour intensive – and therefore expensive – process if done well. The fear is that this is not always the case, with the result that data migration can degrade data quality, and pose risks to patient safety.

6 **Pace of change** It may not be possible to immediately realise benefits from IT. The lengths of time some of the developments take to give a return on investment may be very great. In the USA

computerised physician order entry systems (CPOEs – electronic prescribing systems) may take ten years to achieve a return on the initial investment made.[14] Any critique of IT system implementation should make allowance for time.

There are important pieces of literature, relevant to this subject, that the paper did not include:

- The Greenhalgh evaluation of the first implementations of the SCR,[5] though there was a reference to its commentary in this journal.[15]
- The Royal Academy of Engineers–BCS report on 'Why complex systems fail'.[16]
- The BCS report on 'Where the national IT programme should go from here'.[9]
- The report by the RCGP on the issues raised by use of single shared electronic patient records (SSEPR).[17*]
- Scott's paper 'E-records in health: preserving our future'.[18]
- NHS Connecting for Health's 'Data migration handbook'.[19]
- The Joseph Rowntree Foundation report 'Database state'.[7*]

Summary

While acknowledging the worth of the paper, there are significant issues on which there is literature that it fails to mention, or that are not treated as fully as they deserve to be. Our view is that unless implementation is accompanied by intensive formative evaluation – including local flexibility in the development, procurement and implementation process – it is likely that it will continue to fall short of its objectives in both qualitative and quantitative terms. The complexity and rapid pace of change in patterns of care delivery and advances in technology highlight the need for evolutionary procurement and implementation processes.

However, we are at one with the paper when it says that it is vital that the lessons from this project are learned, and taken forward into future implementations.

REFERENCES

1 Cresswell K and Sheikh A. NHS Care Record Service: recommendations from the literature on successful implementation and adoption. *Informatics in Primary Care* 2009;17:153–64.

2 Berg M, Aarts J and van der Lei J. ICT in health care: sociotechnical approaches. *Methods of Information in Medicine* 2003;42:297–301.

3 Navarro R. An ethical framework for sharing patient data without consent. *Informatics in Primary Care* 2008; 16:257–62.

4 Neame R. Privacy and health information: health cards offer a workable solution. *Informatics in Primary Care* 2008;16:263–70.

5 Greenhalgh T, Stramer K, Bratan T, Byrne E, Mohammad Y and Russell J. Introduction of shared electronic records: multi-site case study using diffusion of innovation theory. *BMJ* 2008;337:a1786.

6 Anderson F, Bohm N, Dowty T *et al. Consultation Response on the Data Sharing Review.* www.fipr.org/080215datasharing.pdf

7 Anderson R, Brown I, Dowty T, Heath W, Ingelsant P and Sasse A. *Database State.* York: Joseph Rowntree Foundation – Reform Trust, 2009. www.jrrt.org.uk/uploads/Database%20State.pdf

8 Hawking M. The Single Shared Electronic Patient Record (SSEPR): problems with functionality and governance. *Informatics in Primary Care* 2008;16:157–8; discussion 159.

9 BCS Health. *The way forward for NHS health informatics. Where should NHS Connecting for Health (NHS CFH) go from here?* London; BCS, 2006. www.bcs.org/upload/pdf/BCS-HIF-report.pdf

10 Department of Health, Health Informatics Review. *The Swindells report.* London; Department of Health, 2008. www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_086127.pdf

11 de Lusignan S, Chan T, Theadom A and Dhoul N. The roles of policy and professionalism in the protection of processed clinical data: a literature review. *International Journal of Medical Informatics* 2007;76:261–8.

12 van der Lei J. Use and abuse of computer-stored medical records. *Methods of Information in Medicine* 1991;30:79–80.

13 de Lusignan S and Mimnagh C. Breaking the first law of informatics: the Quality and Outcomes Framework (QOF) in the dock. *Informatics in Primary Care* 2006; 14:153–6.

14 Kaushal R, Jha AK, Franz C *et al* (Brigham and Women's Hospital CPOE Working Group). Return on investment for a computerized physician order entry system. *Journal of the American Medical Informatics Association* 2006;13: 261–6.

15 de Lusignan S and Aarts J. UK's National Programme for IT welcomes recommendation for a more sociotechnical approach to evaluation: a commentary on the Greenhalgh evaluation of the summary care record. *Informatics in Primary Care* 2008;16:75–7.

16 Royal Academy of Engineers and British Computer Society. *The challenges of complex IT projects.* London: RAE, 2004. www.raeng.org.uk/news/publications/list/reports/Complex_IT_Projects.pdf

17 Royal College of General Practitioners. *Shared Record Professional Guidance.* London: RCGP, 2009. www.rcgp.org.uk/get_involved/informatics_group/shared_record_professional_guidance.aspx

*These reports were both published in 2009 and too late for incorporation in Cresswell and Sheikh's review.

18 Scott RE. E-records in health: preserving our future. *International Journal of Medical Informatics* 2007;76: 427–31.
19 NHS Connecting for Health. *Data Migration Handbook*. 2006. NPFIT-TEC-CEN-0002.01

CONFLICTS OF INTEREST

None.

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